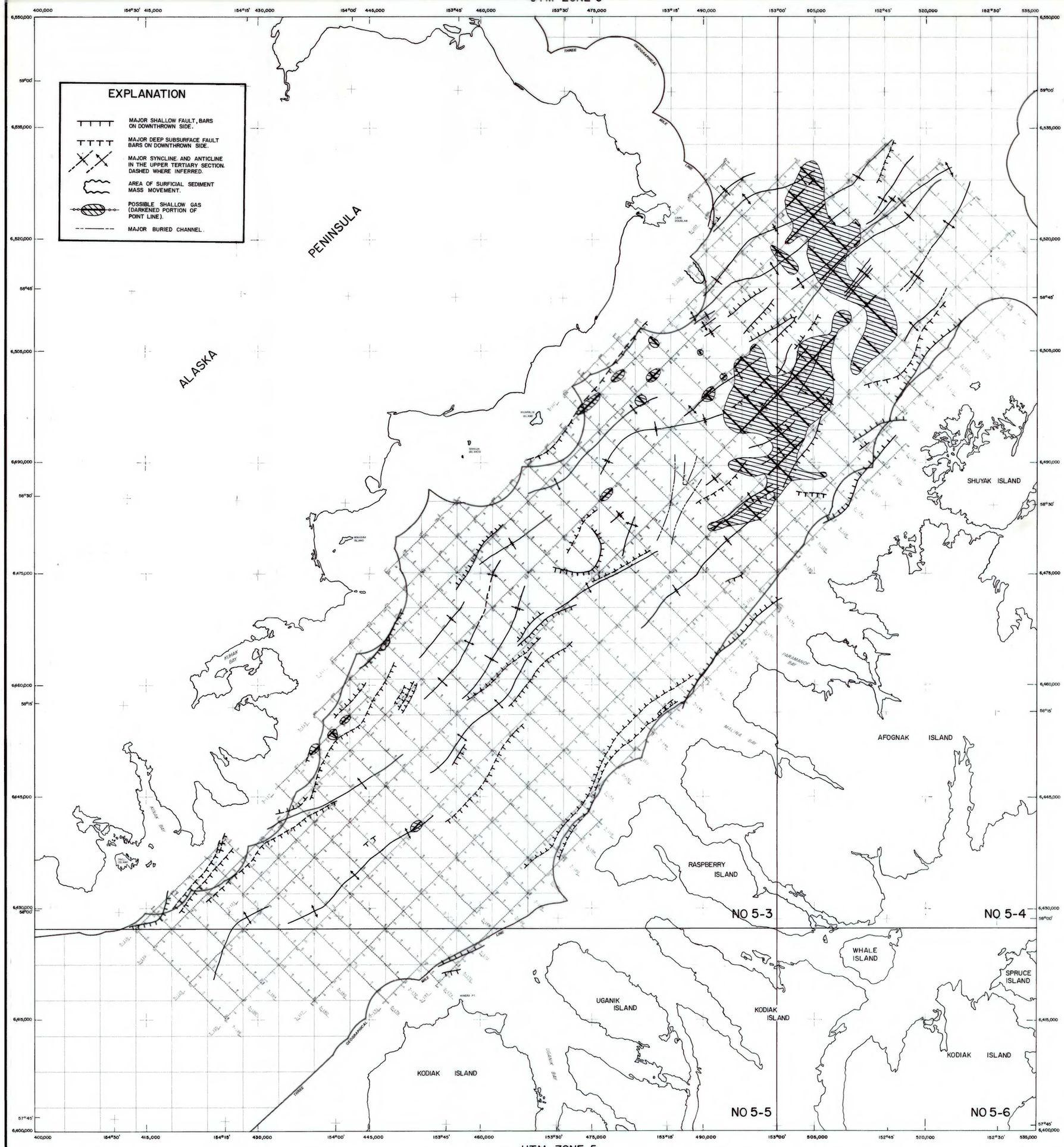
UTM ZONE 5



MAP SHOWING SELECTED GEOLOGIC FEATURES

This map shows the structural and stratigraphic features of Shelikof Strait that have been interpreted to be potentially hazardous to exploratory drilling and oil and gas production.

Two types of faults are shown on the map. Deep subsurface faults offset only Tertiary and older rocks. These faults occur along the margins of the strait and in association with large, asymmetric folds within the Tertiary. Along the margins of the strait, these faults parallel the shores of Kodiak Island and the Alaska Peninsula and are related to the uplift of Kodiak Island and formation of the strait.

Shallow faults displace strata as young as the Holocene marine sequence. Because these faults were active more recently than deep subsurface faults, they represent a greater potential hazard. Shallow faults occur throughout the strait and trend predominantly northeast. These faults occur in three situations: along the margin of the strait; as growth faults; and in association with prominent structural highs. These highs are either horsts or remnant volcanic necks.

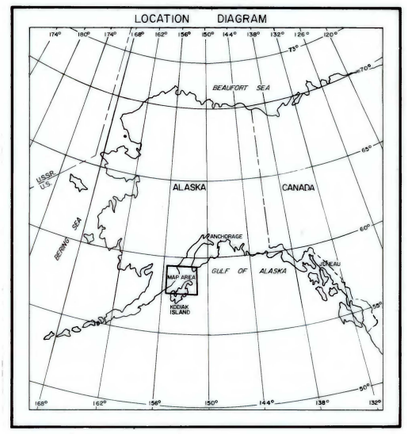
The axes of major synclines and anticlines trend northeast and tend to parallel fault trends. Folds are mostly asymmetric and show two vergence directions: axial planes of folds along the Kodiak Island side of the strait dip towards the northwest and axial planes of folds along the Alaska Peninsula side dip towards the southeast. The folds are shown because they contribute to the overall geologic setting of Shelikof Strait and because they may act as gas traps.

The locations of possible shallow gas accumulations are indicated along track lines. On seismic data, these areas show anomalously bright reflectors that generally have a phase reversal. In some cases, reflectors directly below "bright spots" appear to be masked or wiped out.

Two locations (both on the west side of Shelikof Strait) show evidence of sediment mass movement. In both places, sediment movement involved only the surficial 8 to 12 meters of Holocene marine sediment.

One buried channel, a bifurcating trough, is incised into Tertiary(?) strata. It is shown on this map because the material that fills it has markedly different acoustic characteristics than the Tertiary.

LOCATION DIAGRAM



OPEN-FILE REPORT SERIES ON SHELIKOF STRAIT, ALASKA, 1980

This report is one of six (5 maps and 7 cross sections) on the surface and near-surface geologic environment of Shelikof Strait, Alaska. This series was developed in preparation for Oil and Gas Lease Sale 60 of the Outer Continental Shelf of Lower Cook Inlet, scheduled for September 1981. The publications in this series are:

Bathymetric map of the Outer Continental Shelf of Shelikof Strait, Alaska, by John Whitney and K. D. Holden: U.S. Geological Survey Open-File Report 80-2031, scale 1:250,000, 1 sheet.

Isopach map of upper Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by K. D. Holden: U.S. Geological Survey Open-File Report 80-2032, scale 1:250,000, 1 sheet.

Isopach map of Holocene marine sediments, Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2033, scale 1:250,000, 1 sheet.

Isopach map of Quaternary glacial-marine sediments, Outer Continental Shelf, Alaska, by John Whitney, K. D. Holden, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2034, scale 1:250,000, 1 sheet.

Map showing selected geologic features on the Outer Continental Shelf, Shelikof Strait, Alaska, by Peter J. Hoose and John Whitney: U.S. Geological Survey Open-File Report 80-2035, scale 1:250,000, 1 sheet.

Geologic cross sections of the Outer Continental Shelf, Shelikof Strait, Alaska, by John Whitney, Peter J. Hoose, Laura Me Smith, and Lynn Lybeck: U.S. Geological Survey Open-File Report 80-2036, 1 sheet.

The information presented in these six reports was interpreted from 2557 kilometers of multi-sensored high-resolution geophysical data collected in 1979 by Nekton, Inc., for the U.S. Geological Survey. The acoustic systems used included a 16-kilojoule (kJ) sparker with both sixfold common-depth-point (CDP) processing and analog format, a low-energy (1-3 kJ) sparker, an electromechanical boomer, a 3.5-kHz piezoelectric profiler, a fathometer, and side-scan sonar. The tracklines along which data were collected are shown on each map. This survey was performed under an exclusive contract with the U.S. Geological Survey; the data are available to the public as Sale 60, Data Set AK-18248 from the National Geophysical and Solar-Terrestrial Data Center (address: NOAA/EDS/NGSDC, Code D-621, Boulder, CO 80302).

The 4.8 km X 4.8 km grid superimposed on each map represents the tract boundaries from the Bureau of Land Management Protraction Diagrams.

SOURCE OF SHORELINE FROM BLM PROTRACTION DIAGRAMS NO 4-6, NO 5-1, NO 5-3, NO 5-4 AND NO 5-5. PUBHLISHED IN 1975 AND 1975

SCALE 1:250,000

5 0 5 10 15 20 25 STATUTE MILES

5 0 5 10 15 20 25 KILOMETERS

5 0 5 10 15 NAUTICAL MILES

MAP PROJECTION UTM, CLARKE 1866 SPHEROID, ZONE 5.

This map is not intended for navigational purposes. It has not been edited for conformity with Geological Survey editorial standards or stratigraphic nomenclature.

MAP SHOWING SELECTED GEOLOGIC FEATURES OF OUTER CONTINENTAL SHELF, SHELIKOF STRAIT, ALASKA

PETER J. HOOSE AND JOHN WHITNEY

1980